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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,837	11/16/2004	Paul R. Aimone	Mo-7306/NRC-P74	6922

157 7590 11/01/2007  
BAYER MATERIAL SCIENCE LLC  
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PITTSBURGH, PA 15205

EXAMINER
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MAI, NGOCLAN THI

ART UNIT	PAPER NUMBER
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1793

MAIL DATE	DELIVERY MODE
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11/01/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/501,837	<b>Applicant(s)</b> AIMONE ET AL.	
	<b>Examiner</b> Ngoclan T. Mai	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2007.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 9-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/6/05</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Applicant's election with traverse of group I, claims 1-8 in the reply filed on 8/15/07 is acknowledged. The traversal is on the ground(s) that there is no burden to the examiner to examine all inventions because of an overlapping search area. This is not found persuasive since there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their recognized divergent subject matter and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

The requirement is still deemed proper and is therefore made FINAL.

Claims 9-16 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 8/15/07.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kar et al. (U.S. Patent No. 6,203,861) in view of Brown et al. (U.S. Patent No. 4,323,756).

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Kar discloses a process for making a fully dense three-dimensional object comprising:

a) loading powder metal particles into a hopper (powder feeder 310) for feeding into a laser additive chamber,

(b) loading a substrate into the laser additive chamber, (col. 4, lines 1-6),

(c) feeding the powder metal powders into the additive chamber onto successive points on the substrate in a linear trace,

(d) melting the powder on the substrate with a laser beam and building up multiple coatings of a controlled microstructure,

(e) tracing the substrate over a selected area with a combined deposition and melt beam and building up a coating of a controlled microstructure in multiple layers, and

(f) building up a deposit from the coating and forming a metal refractory part. See abstract, col. 5, line 52-67, col. 6, line 52 to col. 8, line 3, lines 30-33 and lines 51-55.

Kar differs from the claims in that Kar does not teach melting the substrate. Brown teaches a method for fabricating articles by sequential layer deposition of powder on a substrate wherein the substrate is melted to a depth greater than the thickness of the applied feedstock layer. See col. 4, line 65 to col. 5, line 5. Brown teaches the multiple melting permits some material purification since some impurities may be vaporized, ensures the production of a pore free structure, provides perfect metallurgical bonding between deposited layers and promotes continuity of grain structure, i.e., epitaxial growth from one layer to the next. See col. 5, lines 7-12.

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It would have been obvious to one skill in the art that the substrate of Kar also be melted by the laser beam with the first applied feedstock process for the improvement noted by Brown.

Regarding claim 2, the coating would inherently be fully dense since it is formed by the same method as the applicant.

As for claims 3 and 4, Kar teaches powder is feed to the substrate by a carrier gas, which can be argon, helium and nitrogen, see col. 6, lines 8-34.

With regard to claim 5, Kar does not teach the process is carried out under a hard vacuum. Brown teaches process condition can be carried out either by inert gas or vacuum. It would have been obvious to one skilled in the art to substitute the inert gas in the process of Kar with a vacuum since either one can be successfully used in laser melting process as taught by Brown.

With regard to claim 6, the method of Kar in view of Brown is expected to purify the powder and the refractory metal part since Brown teaches the multiple melting permits some material purification due to the vaporization of impurities.

4. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoclan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 8:30-5:00 PM Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

n.m.  
n.m.

ROY KING  
SUPERVISORY PATENT EXAMINER  
FOR ART UNIT 1793